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Abzymes as unique biomarkers and targets to monitor and manage chronic disorders and to serve tools for bioengineering of the next-step generation

Abs against myelin basic protein (MBP), cardiac myosin (CM) and thyroid Ags (TPO, T3 and T4) endowed with proteolytic activity (Ab-proteases) are of great value to monitor chronic autoimmune inflammation and to thus illustrate the evolution of either of the above-mentioned autoimmune disorders. Ab-proteases from MS, AIM and AIT patients exhibited specific proteolytic cleavage of MBP, CM and thyroid Ags (T3, T3, TPO), respectively. The activity of the Ab-proteases markedly differs between: (i) the patients and healthy controls, and (ii) different clinical courses, to predict transformation prior to changes of the clinical course. The activity of Ab-proteases was first registered at the subclinical stages 1-5 years (regardless to type of the disorder) prior to the clinical illness. Some (12-24%) of the direct disease-related relatives are seropositive for low-active Ab-proteases from which seropositive relatives established

were being monitored for 2-3 years whilst demonstrating a stable growth of the Ab-associated proteolytic activity. We saw also low-active Ab-proteases in persons at MS-, AIM- and AIT-related risks (at the subclinical stages), and primary clinical, ultrasonic and MRT manifestations observed were coincided with the activity to have its mid-level reached. The activity of Ab-proteases would confirm a high subclinical and predictive value of the translational tools as applicable for personalized monitoring protocols. Ab-proteases can be programmed and re-programmed to suit the needs of the body metabolism. Of tremendous value are Ab-proteases directly affecting the physiologic remodeling of tissues with multilevel architecture. Further studies on targeted Ab-mediated proteolysis may provide a supplementary tool for predicting exacerbations and thus the disability of the MS, AIM and AIT patients.

Biography

S Suchkov graduated from Astrakhan State Medical University in 1980 and was awarded with MD. In 1985, he completed PhD from I M Sechenov Moscow Medical Academy and Institute of Medical Enzymology. In 2001, he completed his Doctor Degree at the National Institute of Immunology, Russia. From 1989 to 1995, he was Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004, he is a Chair of the Dept. for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). In 1993-1996, he was a Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK. At present, he is Professor and Chair, Department for Personalized and Translational Medicine, I M Sechenov First Moscow State Medical University and Department of Clinical Immunology, A I Evdokimov Moscow State Medical and Dental University. He is a member of the Editorial Boards of Open Journal of Immunology, EPMAJ, American J of Cardiovascular Research and Personalized Medicine Universe. He was the Head of the Lab of Clin Immunol at Helmholtz Eye Res Inst in Moscow from 1989 to 1995. He was a Chair in the Dept. for Clin Immunol at Moscow Reg Clin Res Inst from 1995 to 2004. He has been trained at: NIH; Wills Eye Hospital, PA, USA; University of Florida in Gainesville; UCSF, S-F, CA, USA; Johns Hopkins University, Baltimore, MD, USA. He was an Executive Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK. At present, he is a Director of the Center for Personalized Medicine, Sechenov University and Chair in the Dept. for Translational Medicine at Moscow Engineering Physical Institute (MEPhI), Russia. He is a member of New York Academy of Sciences, USA; American Chemical Society (ACS), USA; American Heart Association (AHA), USA; EPMA (European Association for Predictive, Preventive and Personalized Medicine), Brussels, EU; ARVO (American Association for Research in Vision and Ophthalmology); ISER (International Society for Eye Research); PMC (Personalized Medicine Coalition), Washington, USA.

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